

Amendments to the Specification:

Please replace Table 1 on page 10 and as amended in the Preliminary Amendment mailed March 28, 2002, with the following Table 1, in which the text in the cell under Mode 1 and Contact Point 314 has been changed from "Must also touch Contact Point 312" to "Must also touch Touch Sensor 312".

| Table 1 | | | | | |
|--|--|--|--------------|--|---|
| Touch System with Touch Sensor and One Contact Point | | | | | |
| Mode | What is Powered | Circuit configuration (refer to Figure 5) | | Sensor Sensitivity and Responsiveness (refer to Figure 5) | |
| | | Switch 344 | Switch 346 | Touch Sensor 312 | Contact Point 314 |
| | | Phase of 328 | Phase of 350 | | |
| | | Phase of 327 | Phase of 354 | | |
| 1 | Touch Sensor 312 | Closed | Open | Any Touch | Must also touch Touch Sensor 312 |
| | | 90° | 270° | | |
| | | 0° | DC | | |
| 2 | Contact Point 314 | Open | Closed | Must also touch Contact Point 314 | Any Touch |
| | | 270° | 90° | | |
| | | DC | 0° | | |
| 3 | Touch Sensor 312 and Contact Point 314 | Closed | Closed | Any touch; (More sensitive if Contact Point 314 is also touched) | Any touch; (More sensitive if Touch Sensor 312 is also touched) |
| | | 90° | 270° | | |
| | | 0° | 180° | | |

Please replace Table 2 on page 15 with the following Table 2, in which:

the text in the first column heading under “Sensor Sensitivity and Responsiveness (refer to Figure 7) has been changed from “Sensor 11a” to “Touch Sensor 412”;

the text in the second column heading under “Sensor Sensitivity and Responsiveness (refer to Figure 7) has been changed from “Pad 52” to “Contact Point 414”;

the text in the third column heading under “Sensor Sensitivity and Responsiveness (refer to Figure 7) has been changed from “Pad 53” to “Contact Point 415”; and

the text in the bottom right cell under “Circuit configuration (refer to Figure 7)” has been changed from “Phase of 464” to “Phase of 472”.

| Table 2 | | | | | | | |
|--|---|--|-----------------|-----------------|--|------------------------------------|------------------------------------|
| Operating Modes for Touch System with Touch Sensor and Two Contact Points | | | | | | | |
| Mode | What is Powered | Circuit configuration (refer to Figure 7) | | | Sensor Sensitivity and Responsiveness (refer to Figure 7) | | |
| | | Switch 444 | Switch 446 | Switch 468 | Touch Sensor 412 | Contact Point 414 | Contact Point 415 |
| | | Phase of 428 | Phase of 450 | Phase of 462 | | | |
| | | Phase of 427 | Phase of 454 | Phase of 472 | | | |
| 1 | Touch Sensor 412 | Closed | Open | Open | Any touch | Must touch Touch Sensor 412 | Must touch Touch Sensor 412 |
| | | 90° | 270° | 270° | | | |
| | | 0° | DC | DC | | | |
| 2 | Contact Point 414 | Open | Closed | Open | Must touch Contact Point 414 | Any touch | Must touch Contact Point 414 |
| | | 90° | 270° | 90° | | | |
| | | 0° | 180° | DC | | | |
| 3 | Contact Point 415 | Open | Open | Closed | Must touch Contact Point 415 | Must touch Contact Point 415 | Any touch |
| | | 90° | 90° | 270° | | | |
| | | 0° | DC | 180° | | | |
| 4 | Contact Points 414 and 415 | Open | Closed | Closed | Must touch Contact Point 414 or 415 | Any touch | Any touch |
| | | 270° & 180° | 270° | 180° | | | |
| | | 0° | 180° | 90° | | | |
| 5 | Touch Sensor 412 and Contact Points 414 and 415 | Closed | Closed | Closed | Any touch | Any touch | Any touch |
| | | 90° | 270° | 270° | | | |
| | | 0° | 180° | 180° | | | |

Please amend the paragraph that begins on page 16, line 1 as follows.

--In a second mode of touch system 400 (mode 2), similar to mode 2 of touch system 300, switch 446 is closed and switches 444 and 468 are open. A touch to contact point 415 or touch sensor 412 can be detected and measured only if the user is simultaneously touching or creates an overlapping touch with contact point 414. Switch 446 is closed so that voltage 454 is conveyed through amplifier 448 to contact point 414. Switches 444 and 468 are open so that amplifiers 422 and 460 have DC voltages and touch sensor 412 and contact point 415 have zero time-varying signal. As a result, a touch to touch sensor 412 or contact point 415 while not touching contact point 414, results in no measurable signal and no touch to touch sensor 412 is detected. Signal modifier 452 modifies the phase or frequency of voltage 454 so that voltage 454 is distinguishable from voltages 427 and ~~464~~ 472. Preferably, in the case of a phase sensitive touch system, the phase of current measuring devices 428 and 462 are set 180° from the phase of current measuring device 450.—

Please amend the paragraph that begins on page 16, line 27 as follows.

-- In a third mode of touch system 400 (mode 3) that is similar to mode 2, contact point 415 is activated or made available for activation by closing switch 468. A touch on contact point 414 or on touch sensor 412 can be detected and measured only if the user is simultaneously touching contact point 415. A touch to contact point 415 can also be detected independent of touching contact point 414 or touch sensor 412. In mode 3, switches 444 and 446 are open so that amplifiers ~~222~~ 422 and 448, and thus touch sensor 412 and contact point 414, have DC signals. As a result, a touch to only touch sensor 412 or contact point 414 while not touching contact point 415 results in no measurable signal and no touch is detected. When switch 468 is closed, voltage ~~464~~ 472 is conveyed through amplifier 460 to contact point 415, and current 470 is measured by current measuring device 462.--

Please amend the paragraph that begins on page 17, line 6 as follows.

--In one embodiment of touch system 400, two users can use the touch system simultaneously if processor 416 is programmed to switch or toggle rapidly between modes 2 and 3. If a first user touches contact point 414 continuously and a second user touches contact point

415 continuously, the touch coordinates of each user touching touch sensor 412 can be measured because the signals generated by each user on touch sensor 412 are distinguishable from each other. According to this embodiment, processor 416 first configures switches 444, 446 and 468 to mode 2, activating contact point 414 with a signal equal to voltage 454. The presence of the first user is detected by current change through contact point 414, resulting from capacitive contact 458 with the first user. When the first user touches touch sensor 412, a connection with voltage 454 via amplifier 448 to contact point 414 causes current 456 to flow through the first user's body and into touch sensor 412. The position of the first user is measured from the distribution of current through electrodes 420, current measuring devices 428 and amplifiers 422. If the second user is touching touch sensor 412 during this time, the capacitive coupling of the second user's body will have a negligible effect on currents 456 flowing from the first user into touch sensor 412, because the current from the first user's body generates negligible voltage on the surface of touch sensor 412. After measuring the first user's position, processor 416 changes or toggles from mode 2 to mode 3, thus deactivating contact point 414 and activating contact point 415 with voltage signal ~~464~~ 472. The presence of the second user is detected by a current change through contact point 415 that results from capacitive contact with the second user. When the second user touches touch sensor 412, a connection with voltage 464 via amplifier 460 to contact point 415, causes current 470 to flow through the second user's body and into touch sensor 412. The touch by the second user to touch sensor 412 is measured from the distribution of current in touch sensor 412. Measuring both the first and second user's position by switching or toggling from mode 2 to mode 3 and from mode 3 to mode 2 can be repeated at a rapid rate of, for example, 5 milliseconds per mode. This will result in the perception of simultaneous detection, even in situations where touch down and lift off are rapid by human standards. While this embodiment shows a useful two-user device with two contact points 414 and 415, it is readily expandable to more than two users by the addition of more contact points and their associated circuitry.--

Please amend the paragraph that begins on page 19, line 16 as follows.

--Mode 4 has an important difference from other modes of touch system 400 in that current measurement circuits 428 may each use a phase sensitive or frequency sensitive

demodulator that measures two separate phases or frequencies, for example, phases that are 90° apart. Also, signal modifiers 452 and 466 may be set to generate voltages 454 and ~~464~~ 472 at separate phases or frequencies, for example, phases that are 90° apart so that the phase sensitive demodulator 428 may detect currents resulting from a user touching contact point 414 or 415 and touch sensor 412. With these phase or frequency settings, current measuring devices 428 are able to yield simultaneous detection of touches to contact points 414 or 415 and a position measurement of a touch to touch sensor 412.--

Please amend the paragraph that begins on page 19, line 25 as follows.

--In fifth mode of touch system 400 (mode 5), touch sensor 412 and contact points 414 and 415 are all driven with time varying voltage signals, preferably by closing switches 444, 446 and 468. A touch to touch sensor 412 alone may be detected and measured, as will a touch to only contact points 414 or 415. Signal modifiers 452 and 466 may adjust the phase or frequency of voltages 454 and ~~464~~ 472 to be distinguishable over each other and voltage 427, for example, by 180° out of phase with voltage 427 and 90° out of phase with each other.--